January 2005 Water Sampling

Validation Data Package
for
Configuration 2 Interim Action Injection Test Sampling
Moab, Utah

June 2005

Moab, Utah

January 26 – 28, 2005

Data Package Contents

This data package includes the following information:

Item No.	Description of Contents
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	Water Sampling Field Activities Verification Checklist
	Laboratory Performance Assessment
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Sampling Event Summary

Site: Moab, Utah

Sampling Period: January 26 - 28, 2005

The purpose of this sampling event was to collect data that can be used to evaluate the Configuration 2 injection system. This is the fifth round of sampling on the injection system performance since the baseline samples were collected just prior to starting injection on October 6, 2004.

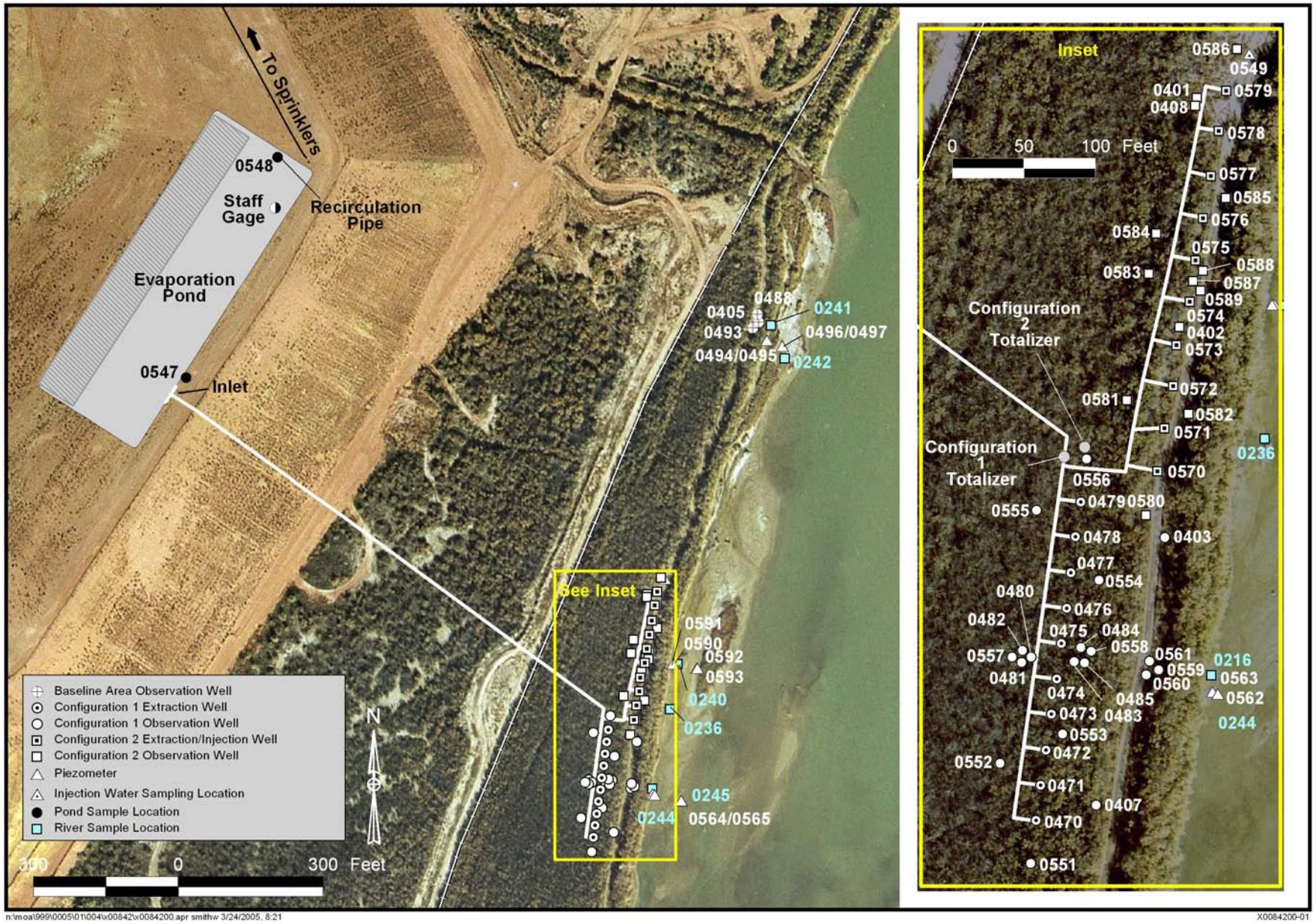
Sampling and analysis was conducted in accordance with the *Operations, Maintenance, and Performance Monitoring Plan for the Interim Action Ground Water Treatment System, February 2004.* Groundwater samples were collected from seven observation wells (0408, 0580, 0582, 0583, 0584, 0587, and 0589), four piezometers (0590-0593), one river water location (0236), and the fresh injection water (0549). Including two duplicates and one equipment blank, a total of 16 samples were submitted for laboratory analysis.

Analysis and interpretation of the validated data presented in this package will be reported as part of a performance evaluation report on the injection system scheduled in 2005. However, to monitor performance of the injection effort, time-versus concentration graphs are included for certain key indicator wells and major contaminants of concern. Generally, contaminant concentrations continue to be suppressed by the injection of clean water.

Kenneth E. Karp
Site Lead

6/2/05
Date

Sample Location Map



Sample Locations at the Interim Action Well Field and Baseline Area (may include locations not sampled)

Data Assessment Summary

Water Sampling Field Activities Verification Checklist (continued)

Project	Moab, Utah	**Date(s) of Water Sampling**	January 26 - 28, 2005
Date(s) of Verification	April 25, 2005	**Name of Verifier**	Jeff Price

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOP's, instructions.	NA	
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Was a pre-trip calibration conducted as specified in the above named documents?	Yes	
4. Was an operational check of the field equipment conducted twice daily?	Yes	
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, Ec, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. Was the Category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4 hour delay between pump installation and sampling?	NA	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	
Was the true identity of the samples recorded on the Quality Assurance Sample Log?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Requisition No.:	05010160
Sample Event:	January 26, 27, and 28, 2005 Water Sampling
Site(s):	Moab, Utah
Laboratory:	Paragon Analytics
Work Order No.:	0501201
Analysis:	Metals and Inorganics
Validator:	Steve Donivan
Review Date:	February 28, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), "Standard Practice for Validation of Laboratory Data", GT-9(P) (2004). All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 1.

Table 1. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Sulfate, SO4	MIS-A-044	SW-846 9056	SW-846 9056
Ammonia as N, NH3-N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Total Dissolved Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1

Data Qualifier Summary

One uranium result is qualified as "U" as listed in Table 2.

Table 2. Qualified Results

Sample Number	Location	Analyte	Flag	Reason
0501201-16	2761	U	U	Less than 5 times the blank

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 16 samples on January 29, 2005 accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the form and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form, the sample submittal form, and the sample tickets had no errors or omissions.

Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the cooler of 3.6 ºC, which complies with requirements. Samples from locations 0592, 2759, and 2760 were shipped to the laboratory unfiltered and un-acidified because of the small sample volume available. Aliquots of these samples were filtered and acidified for uranium analysis upon receipt by the laboratory. All other samples had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times. The laboratory issued a non-conformance report regarding the holding time for samples from locations 0236, 0591, 0593, and 2759 submitted for total dissolved solids (TDS) analysis. The TDS analysis was started, but was not completed, before the holding time expired. Compliance with the holding time is achieved once the analysis has started.

Laboratory Instrument Calibration

All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

Method SW-846 6020

Calibration for uranium was performed on February 15, 2005 using four calibration standards resulting in a correlation coefficient (r^2) value greater than 0.995. The absolute value of the intercept was less than three times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in nine CCVs. All calibration checks met the acceptance criteria. A reporting limit verification check was made at the beginning of the analytical sequence to verify the linearity of the calibration curve near the practical quantitation limit and was within the acceptance range. The mass calibration and resolution was checked at the beginning of each analytical run and the internal standard recoveries were stable and within acceptance ranges.

Method SW-846 9056

Initial calibrations were performed for chloride and sulfate using five calibration standards on January 31, 2005. The r^2 values were greater than 0.995 and intercepts less than three times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in seventeen CCVs that met the acceptance criteria.

Method MCAWW 350.1

The initial calibration for ammonia as N was performed using seven calibration standards on February 8, 2005, resulting in a r^2 value greater than 0.995. Initial and continuing calibration checks were made at the required frequency, resulting in eight CCVs. All initial and CCVs were within the acceptance criteria.

Method MCAWW 160.1

There is no initial or continuing calibration requirement associated with the determination of TDS.

Method and Calibration Blanks

The uranium initial and continuing calibration blanks were below the practical quantitation limits. The chloride, sulfate, ammonia as N, and TDS method blanks and initial and continuing calibration blanks (CCB) were below the method detection limits with the exception of chloride CCB5 analyzed on February 2, 2005. The samples associated with this CCB were reanalyzed with an acceptable CCB.

Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma interference check samples were analyzed at the required frequency and all results met the acceptance criteria.

Matrix Spike Analysis

Three pairs of matrix spike and matrix spike duplicate samples (MS/MSD) were analyzed for uranium with acceptable recovery and precision. MS/MSD pairs were analyzed for ammonia as N, chloride, and sulfate with acceptable results.

Laboratory Replicate Analysis

The relative percent difference values for the MSD and laboratory duplicate sample results for chloride, sulfate, ammonia as N, TDS, and uranium were less than 20 percent.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency with acceptable results for all analysis categories.

Metals Serial Dilution

Serial dilutions were performed during the uranium analysis. The data from sample 0501196-2L were not evaluated because the large dilution factors used resulted in concentrations less than 100 times the practical quantitation limit.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for all analytes.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers. There was insufficient sample volume submitted from location 0590 to perform the uranium analysis.

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

Electronic Data Deliverable File

An Electronic Data Deliverable (EDD) file arrived on February 25, 2005; the EDD validation application identified no problems with the EDD file.

Field Analyses/Activities

The following information summarizes the field activities for this sampling event period.

Field Activities

All monitor well results were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. Duplicate samples were collected from wells 0591 and 0593. There are no established regulatory criteria for the evaluation of field duplicate samples; therefore, U.S. Environmental Protection Agency (EPA) guidance for laboratory duplicates (which is conservative for field duplicates) was used to assess the precision of the field duplicates. With the exception of the uranium result for 0591, which varied by 200 percent, duplicate results varied by less than the +/-20 RPD criteria and are considered acceptable. There is no evidence of laboratory error regarding the highly variable uranium result. One possible explanation for the variability is that location 0591 is a low yielding piezometer that requires several purge cycles (i.e., purge the well dry and return later and re-purge) to collect enough water volume for laboratory analysis. An equipment blank was collected and analyzed for the same constituents as the regular water samples. Concentrations measured in the equipment blank were below levels of concern; therefore, equipment blank results are considered acceptable.

Certification

Results were reported in correct units for all analytes requested, appropriate contract-required laboratory qualifiers and target analyte lists were used, and the required detection limits were met when possible, or an explanation of why they were not met was given in the laboratory case narrative. All analytical quality control criteria were met except as qualified on the Ground Water Quality Data by Parameter, Surface Water Quality by Parameter, or equipment/trip blank database printouts. The meaning of data qualifiers is defined on the database printouts or defined in the EPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media Multi-Concentration, Document Number ILMO2.0, 1991. All data in this package are considered validated and may be treated as final results.

Laboratory Validation Lead: Steve Donivan — Steve Donivan — 6-2-2005 — Date

Field Activities Validation Lead: J.E. Price — Jeff Price — June 2, 05 — Date

Attachment 1

Data Presentation

Minimums and Maximums Report

Minimums and Maximums Report

The Minimums and Maximums Report is generated by a data validation application (DataVal) used to query the SEEPro database. The DataVal compares the new data set with historical data and lists all new data that fall outside the historical data range. Values listed in the report are further screened using the following criteria. Results are not considered anomalous if (1) identified low concentrations are the result of low detection limits; (2) the concentration detected is within 50 percent of historical minimum or maximum values; (3) there were fewer than 5 historical samples for comparison.

Sulfate, TDS, and uranium results for well 408; ammonia and uranium results for well 580; and ammonia, chloride, sulfate, TDS, and uranium results for well 0591 have been identified as anomalously low this sampling event. Observation wells 408 and 580 are located at the north end and south end of the Configuration 2 well field, respectively; piezometer 0591 is located adjacent to and on the river side of the Configuration 2 well field. The anomalously low values observed are the result of injecting relatively clean river water with ground water. Therefore, these results are expected and acceptable. The time versus concentration plots show the decrease in concentrations as a result of the interim action pumping wells.

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters
LAB CODE: PAR, PARAGON (Fort Collins, CO)
LAB REQUISITION(S): 05010160
HISTORY BEGIN DATE: comparing to ail historical data
REPORT DATE: 04/26/05 08:30:45: AM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	CURRENT RESULT	CURRENT QUALIFIERS LAB	CURRENT QUALIFIERS DATA	HISTORICAL MAXIMUM RESULT	HISTORICAL MAXIMUM QUALIFIERS LAB	HISTORICAL MAXIMUM QUALIFIERS DATA	HISTORICAL MINIMUM RESULT	HISTORICAL MINIMUM QUALIFIERS LAB	HISTORICAL MINIMUM QUALIFIERS DATA	COUNT N	COUNT N BELOW DETECT
MOA01	0236	01/26/2005	Total Dissolved Solids	5700			17000			6800			7	0
MOA01	0236	01/26/2005	Uranium	0.87			2.6		J	0.97			7	0
MOA01	0408	01/28/2005	Ammonia Total as N	170		F	1200			320		F	6	0
MOA01	0408	01/28/2005	Chloride	160		F	2840.6			300		F	6	0
MOA01	0408	01/28/2005	Sulfate	2200		F	13871.4			4400		F	6	0
MOA01	0408	01/28/2005	Total Dissolved Solids	2900		F	20000		F	6500		F	5	0
MOA01	0408	01/28/2005	Uranium	0.24		F	3.1624			0.59		F	6	0
MOA01	0580	01/28/2005	Ammonia Total as N	8.8		F	470		F	26		F	6	0
MOA01	0580	01/28/2005	Sulfate	880		F	8100		F	1200		F	6	0
MOA01	0580	01/28/2005	Total Dissolved Solids	1700		F	16000		F	2300		F	6	0
MOA01	0580	01/28/2005	Uranium	0.21		F	2.5		F	0.47		F	6	0
MOA01	0591	01/26/2005	Ammonia Total as N	170		FQ	1100		F	700		FQ	6	0
MOA01	0591	01/27/2005	Ammonia Total as N	150		FQ	1100		F	700		FQ	6	0
MOA01	0591	01/26/2005	Chloride	380		FQ	3900		F	2200		FQ	6	0
MOA01	0591	01/27/2005	Chloride	360		FQ	3900		F	2200		FQ	6	0
MOA01	0591	01/26/2005	Sulfate	1400		FQ	13000		F	7400		FQ	6	0
MOA01	0591	01/27/2005	Sulfate	1300		FQ	13000		F	7400		FQ	6	0
MOA01	0591	01/26/2005	Total Dissolved Solids	2600		FQ	24000		F	14000		FQ	6	0
MOA01	0591	01/27/2005	Total Dissolved Solids	2200		FQ	24000		F	14000		FQ	6	0
MOA01	0591	01/26/2005	Uranium	0.13		FQ	2.5		JFQ	0.71		FQ	6	0
MOA01	0591	01/27/2005	Uranium	0.045		FQ	2.5		JFQ	0.71		FQ	6	0
MOA01	0593	01/26/2005	Chloride	3600		F	3300		FQ	2800		F	7	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT -- No Field Parameters
LAB CODE: PAR, PARAGON (Fort Collins, CO)
LAB REQUISITION(S): 05010160
HISTORY BEGIN DATE: comparing to all historical data
REPORT DATE: 04/26/05 08:30:45: AM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	CURRENT RESULT	CURRENT QUALIFIERS LAB	CURRENT QUALIFIERS DATA	HISTORICAL MAXIMUM RESULT	HISTORICAL MAXIMUM QUALIFIERS LAB	HISTORICAL MAXIMUM QUALIFIERS DATA	HISTORICAL MINIMUM RESULT	HISTORICAL MINIMUM QUALIFIERS LAB	HISTORICAL MINIMUM QUALIFIERS DATA	COUNT N	COUNT N BELOW DETECT
MOA01	0593	01/26/2005	Chloride	3600		F	3300		FQ	2800		F	7	0
MOA01	0593	01/26/2005	Uranium	3.3		F	3.2		FQ	2.1		FQ	7	0

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- C Pesticide result confirmed by GC-MS.
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- D Analyte determined in diluted sample.
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- > Result above upper detection limit.
- J Estimated

DATA QUALIFIERS:

- J Estimated value.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- F Low flow sampling method used.
- R Unusable result.
- Q Qualitative result due to sampling technique
- G Possible grout contamination, pH > 9.
- X Location is undefined.

Anomalous Data Review Checksheet

Anomalous Data Review Checksheet

Site: Moab Processing Site **Sampling Date:** January 26 – 28, 2005

Reviewer: Jeff Price (Name) J.E. Price (Signature) June 2, 05 (Date)

Site Lead: Kenneth Karp (Name) Kenneth Karp (Signature) 6/2/05 (Date)

Loc. No.	Analyte	Type of Anomaly	Disposition
0408	Sulfate	Low	Low due to injection of clean water in Configuration 2 wells
0408	TDS	Low	Low due to injection of clean water in Configuration 2 wells
0408	Uranium	Low	Low due to injection of clean water in Configuration 2 wells
0580	Ammonia as N	Low	Low due to injection of clean water in Configuration 2 wells
0580	Uranium	Low	Low due to injection of clean water in Configuration 2 wells
0591	Ammonia as N	Low	Low due to injection of clean water in Configuration 2 wells
0591	Ammonia as N	Low	Low due to injection of clean water in Configuration 2 wells
0591	Chloride	Low	Low due to injection of clean water in Configuration 2 wells
0591	Chloride	Low	Low due to injection of clean water in Configuration 2 wells
0591	Sulfate	Low	Low due to injection of clean water in Configuration 2 wells
0591	Sulfate	Low	Low due to injection of clean water in Configuration 2 wells
0591	TDS	Low	Low due to injection of clean water in Configuration 2 wells
0591	TDS	Low	Low due to injection of clean water in Configuration 2 wells
0591	Uranium	Low	Low due to injection of clean water in Configuration 2 wells
0591	Uranium	Low	Low due to injection of clean water in Configuration 2 wells

Water Quality Data

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:18 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0401	O	3969.60	01/28/2005	09:12	15.19	3954.41	
0402	O	3968.63	01/28/2005	11:41	14.97	3953.66	
0408	O	3969.17	01/28/2005	08:45	14.79	3954.38	
0580		3969.32	01/28/2005	12:26	16.15	3953.17	
0581		3969.02	01/28/2005	12:11	15.42	3953.60	
0582		3969.65	01/28/2005	11:52	16.05	3953.60	
0583		3969.64	01/28/2005	10:20	15.80	3953.84	
0584		3969.13	01/28/2005	10:02	15.15	3953.98	
0585		3969.36	01/28/2005	09:48	15.28	3954.08	
0586		3969.20	01/28/2005	09:33	14.56	3954.64	
0587		3968.89	01/28/2005	10:40	15.08	3953.81	
0588		3969.04	01/28/2005	10:57	14.85	3954.19	
0589		3968.87	01/28/2005	11:12	14.84	3954.03	
0590		3956.70	01/26/2005	15:26	3.46	3953.24	
0591		3953.99	01/26/2005	15:34	0.84	3953.15	
0592		3956.36	01/26/2005	15:54	3.34	3953.02	
0593		3954.90	01/26/2005	15:59	1.53	3953.37	

RECORDS: SELECTED FROM USEE700 WHERE site_code='MOA01' AND location_code in('0590','0591','0592','0593','0236','0408','0401','0549','0586','0585','0584','0583','0587','0588','0589','0402','0582','0581','0580') AND LOG_DATE between #1/26/2005# and #1/28/2005#

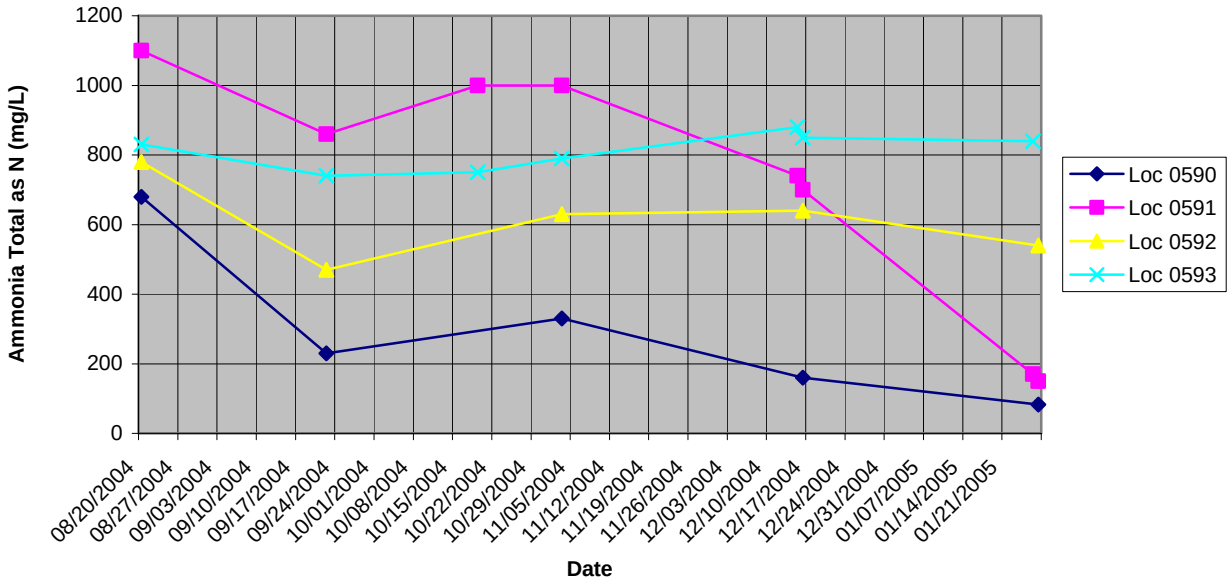
FLOW CODES: O ON-SITE

WATER LEVEL FLAGS:

Time Versus Concentration Graphs

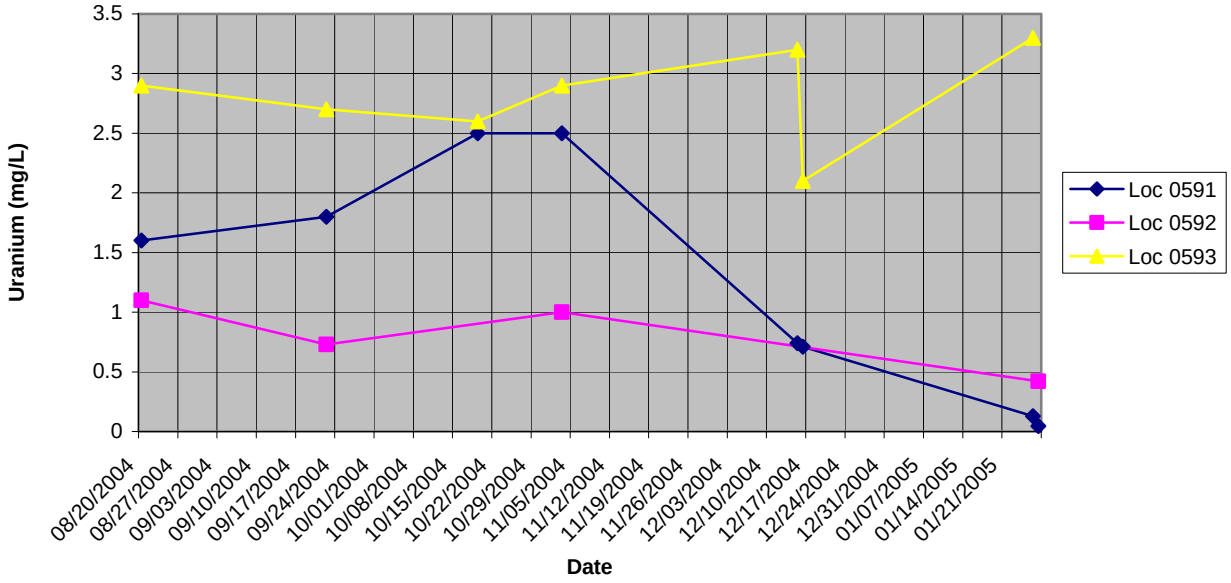
Moab Site (MOA01)

Ammonia Total as N Concentration



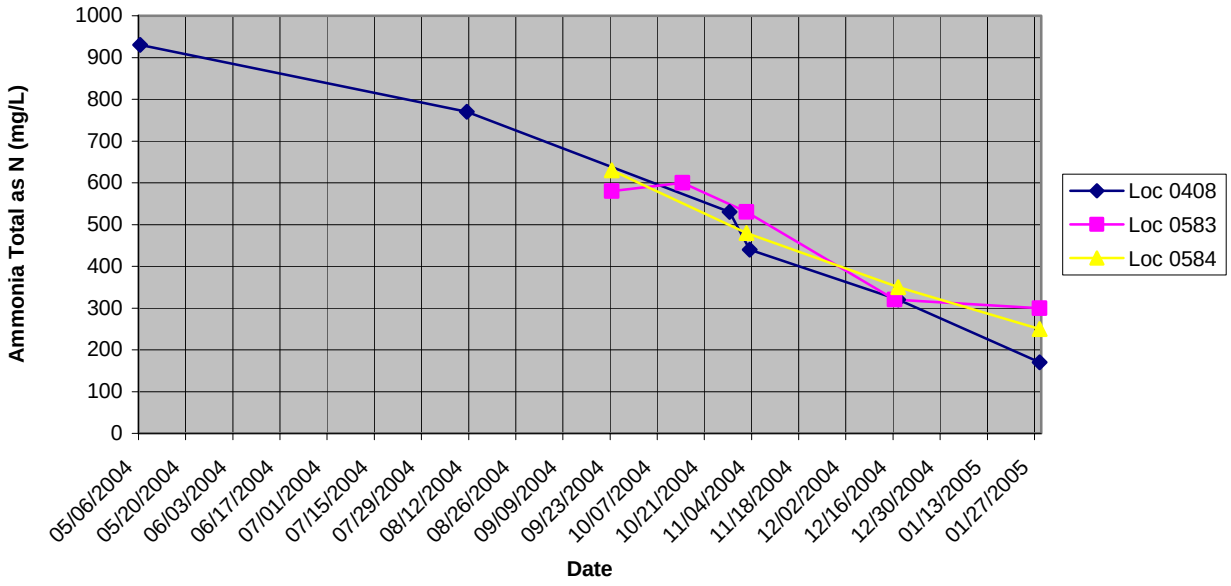
Moab Site (MOA01)

Uranium Concentration



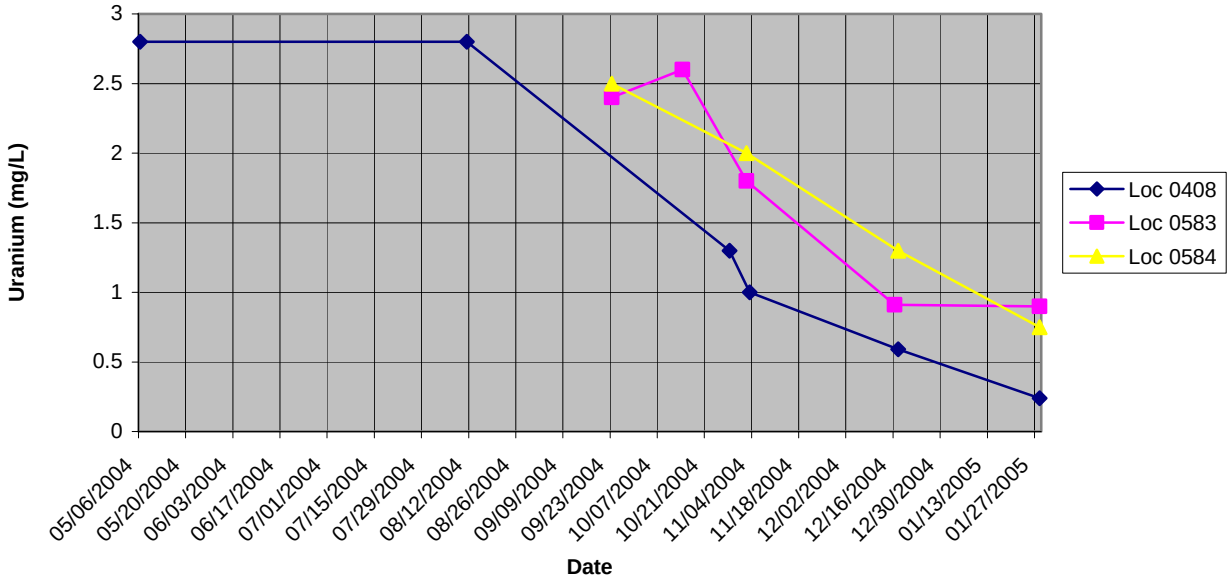
Moab Site (MOA01)

Ammonia Total as N Concentration



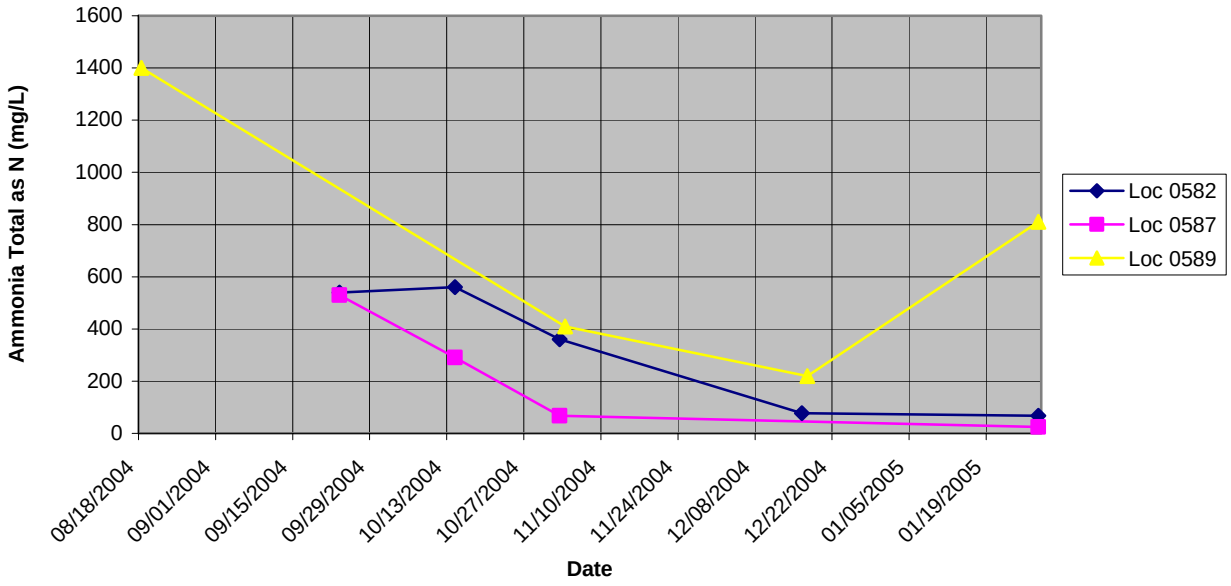
Moab Site (MOA01)

Uranium Concentration



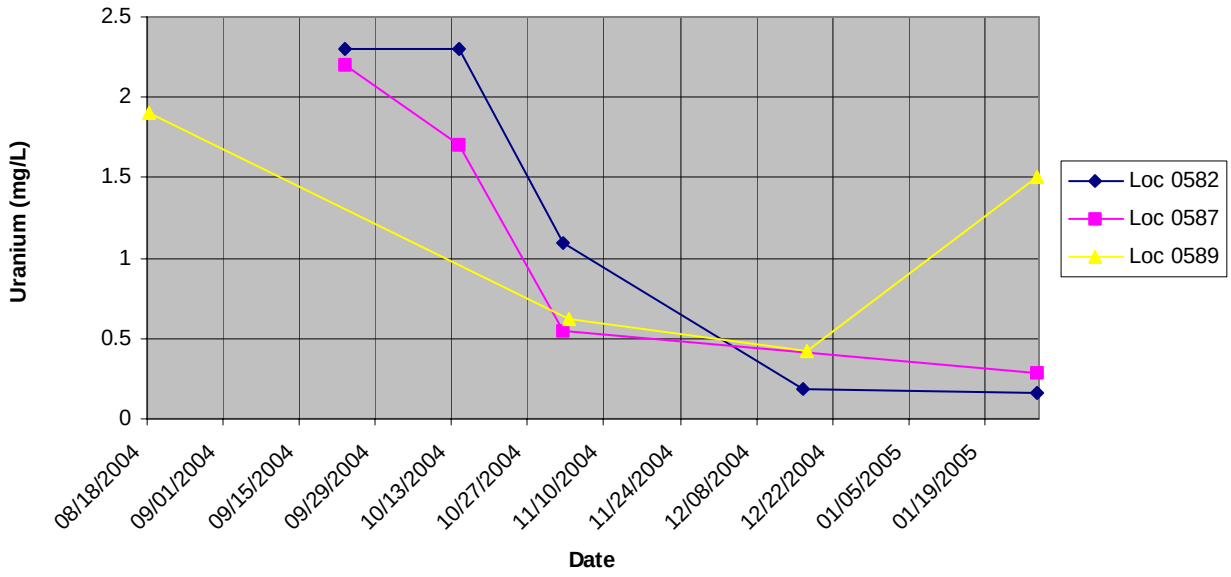
Moab Site (MOA01)

Ammonia Total as N Concentration



Moab Site (MOA01)

Uranium Concentration



Water Level Data

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0236	SL, RIV	01/26/2005	0001	0.30 - 0.30	416			#	-	-
	mg/L	0408	WL	01/28/2005	0001	26.00 - 26.00	272		F	#	-	-
	mg/L	0549	IS, IHYD	01/28/2005	0001	0.00 - 0.00	104			#	-	-
	mg/L	0580	WL	01/28/2005	0001	18.00 - 18.00	240		F	#	-	-
	mg/L	0582	WL	01/28/2005	0001	18.00 - 18.00	248		F	#	-	-
	mg/L	0583	WL	01/28/2005	0001	18.00 - 18.00	574		F	#	-	-
	mg/L	0584	WL	01/28/2005	0001	18.00 - 18.00	488		F	#	-	-
	mg/L	0587	WL	01/28/2005	0001	18.00 - 18.00	268		F	#	-	-
	mg/L	0589	WL	01/28/2005	0001	44.00 - 44.00	548		F	#	-	-
	mg/L	0593	WL, PZ	01/26/2005	0001	4.13 - 4.13	1064		F	#	-	-
Ammonia Total as N	mg/L	0236	SL, RIV	01/26/2005	0001	0.30 - 0.30	150			#	10	-
	mg/L	0408	WL	01/28/2005	0001	26.00 - 26.00	170		F	#	50	-
	mg/L	0549	IS, IHYD	01/28/2005	0001	0.00 - 0.00	0.1	U		#	0.1	-
	mg/L	0580	WL	01/28/2005	0001	18.00 - 18.00	8.8		F	#	0.5	-
	mg/L	0582	WL	01/28/2005	0001	18.00 - 18.00	68		F	#	5	-
	mg/L	0583	WL	01/28/2005	0001	18.00 - 18.00	300		F	#	50	-
	mg/L	0584	WL	01/28/2005	0001	18.00 - 18.00	250		F	#	50	-
	mg/L	0587	WL	01/28/2005	0001	18.00 - 18.00	25		F	#	1	-
	mg/L	0589	WL	01/28/2005	0001	44.00 - 44.00	810		F	#	50	-
	mg/L	0590	WL, PZ	01/27/2005	N001	1.08 - 1.08	83		FQ	#	5	-
	mg/L	0591	WL, PZ	01/26/2005	0001	4.22 - 4.22	170		FQ	#	5	-
	mg/L	0591	WL, PZ	01/27/2005	N002	4.22 - 4.22	150		FQ	#	50	-
	mg/L	0592	WL, PZ	01/27/2005	N001	2.10 - 2.10	540		FQ	#	50	-
	mg/L	0593	WL, PZ	01/26/2005	0001	4.13 - 4.13	840		F	#	50	-
	mg/L	0593	WL, PZ	01/26/2005	N002	4.13 - 4.13	780		F	#	50	-
Chloride	mg/L	0236	SL, RIV	01/26/2005	0001	0.30 - 0.30	1800			#	20	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0408	WL	01/28/2005	0001	26.00 - 26.00	160		F	#	10	-
	mg/L	0549	IS, IHYD	01/28/2005	0001	0.00 - 0.00	130			#	4	-
	mg/L	0580	WL	01/28/2005	0001	18.00 - 18.00	180		F	#	4	-
	mg/L	0582	WL	01/28/2005	0001	18.00 - 18.00	210		F	#	4	-
	mg/L	0583	WL	01/28/2005	0001	18.00 - 18.00	520		F	#	20	-
	mg/L	0584	WL	01/28/2005	0001	18.00 - 18.00	300		F	#	20	-
	mg/L	0587	WL	01/28/2005	0001	18.00 - 18.00	170		F	#	10	-
	mg/L	0589	WL	01/28/2005	0001	44.00 - 44.00	21000		F	#	400	-
	mg/L	0590	WL, PZ	01/27/2005	N001	1.08 - 1.08	250		FQ	#	10	-
	mg/L	0591	WL, PZ	01/26/2005	0001	4.22 - 4.22	380		FQ	#	10	-
	mg/L	0591	WL, PZ	01/27/2005	N002	4.22 - 4.22	360		FQ	#	10	-
	mg/L	0592	WL, PZ	01/27/2005	N001	2.10 - 2.10	2000		FQ	#	40	-
	mg/L	0593	WL, PZ	01/26/2005	0001	4.13 - 4.13	3600		F	#	100	-
	mg/L	0593	WL, PZ	01/26/2005	N002	4.13 - 4.13	3600		F	#	100	-
Oxidation Reduction Potent	mV	0236	SL, RIV	01/26/2005	N001	0.30 - 0.30	-23			#	-	-
	mV	0401	WL	01/28/2005	N001	18.00 - 18.00	54.5		F	#	-	-
	mV	0402	WL	01/28/2005	N001	17.00 - 17.00	64.5		F	#	-	-
	mV	0408	WL	01/28/2005	N001	26.00 - 26.00	54.5		F	#	-	-
	mV	0549	IS, IHYD	01/28/2005	N001	0.00 - 0.00	54			#	-	-
	mV	0580	WL	01/28/2005	N001	18.00 - 18.00	77.8		F	#	-	-
	mV	0581	WL	01/28/2005	N001	18.00 - 18.00	78.9			#	-	-
	mV	0582	WL	01/28/2005	N001	18.00 - 18.00	85.0		F	#	-	-
	mV	0583	WL	01/28/2005	N001	18.00 - 18.00	67.9		F	#	-	-
	mV	0584	WL	01/28/2005	N001	18.00 - 18.00	65.0		F	#	-	-
	mV	0585	WL	01/28/2005	N001	18.00 - 18.00	57.7		F	#	-	-
	mV	0586	WL	01/28/2005	N001	18.00 - 18.00	52.8		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potent	mV	0587	WL	01/28/2005	N001	18.00 - 18.00	70.9		F	#	-	-
	mV	0588	WL	01/28/2005	N001	26.00 - 26.00	65.9		F	#	-	-
	mV	0589	WL	01/28/2005	N001	44.00 - 44.00	60.3		F	#	-	-
	mV	0590	WL, PZ	01/26/2005	N001	1.08 - 1.08	-3.1		FQ	#	-	-
	mV	0591	WL, PZ	01/26/2005	N001	4.22 - 4.22	-1.6		FQ	#	-	-
	mV	0592	WL, PZ	01/26/2005	N001	2.10 - 2.10	21		FQ	#	-	-
	mV	0593	WL, PZ	01/26/2005	N001	4.13 - 4.13	2.5		F	#	-	-
pH	s.u.	0236	SL, RIV	01/26/2005	N001	0.30 - 0.30	7.75			#	-	-
	s.u.	0401	WL	01/28/2005	N001	18.00 - 18.00	7.71		F	#	-	-
	s.u.	0402	WL	01/28/2005	N001	17.00 - 17.00	7.69		F	#	-	-
	s.u.	0408	WL	01/28/2005	N001	26.00 - 26.00	7.60		F	#	-	-
	s.u.	0549	IS, IHYD	01/28/2005	N001	0.00 - 0.00	8.18			#	-	-
	s.u.	0580	WL	01/28/2005	N001	18.00 - 18.00	7.23		F	#	-	-
	s.u.	0581	WL	01/28/2005	N001	18.00 - 18.00	7.64			#	-	-
	s.u.	0582	WL	01/28/2005	N001	18.00 - 18.00	7.91		F	#	-	-
	s.u.	0583	WL	01/28/2005	N001	18.00 - 18.00	7.48		F	#	-	-
	s.u.	0584	WL	01/28/2005	N001	18.00 - 18.00	7.48		F	#	-	-
	s.u.	0585	WL	01/28/2005	N001	18.00 - 18.00	7.77		F	#	-	-
	s.u.	0586	WL	01/28/2005	N001	18.00 - 18.00	7.73		F	#	-	-
	s.u.	0587	WL	01/28/2005	N001	18.00 - 18.00	7.33		F	#	-	-
	s.u.	0588	WL	01/28/2005	N001	26.00 - 26.00	7.80		F	#	-	-
	s.u.	0589	WL	01/28/2005	N001	44.00 - 44.00	7.10		F	#	-	-
	s.u.	0590	WL, PZ	01/26/2005	N001	1.08 - 1.08	9.25		FQ	#	-	-
	s.u.	0591	WL, PZ	01/26/2005	N001	4.22 - 4.22	8.64		FQ	#	-	-
	s.u.	0592	WL, PZ	01/26/2005	N001	2.10 - 2.10	7.35		FQ	#	-	-
	s.u.	0593	WL, PZ	01/26/2005	N001	4.13 - 4.13	7.07		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0236	SL, RIV	01/26/2005	N001	0.30 - 0.30	8290			#	-	-
	umhos/cm	0401	WL	01/28/2005	N001	18.00 - 18.00	1326		F	#	-	-
	umhos/cm	0402	WL	01/28/2005	N001	17.00 - 17.00	2196		F	#	-	-
	umhos/cm	0408	WL	01/28/2005	N001	26.00 - 26.00	4559		F	#	-	-
	umhos/cm	0549	IS, IHYD	01/28/2005	N001	0.00 - 0.00	1258			#	-	-
	umhos/cm	0580	WL	01/28/2005	N001	18.00 - 18.00	2431		F	#	-	-
	umhos/cm	0581	WL	01/28/2005	N001	18.00 - 18.00	3521			#	-	-
	umhos/cm	0582	WL	01/28/2005	N001	18.00 - 18.00	210		F	#	-	-
	umhos/cm	0583	WL	01/28/2005	N001	18.00 - 18.00	8815		F	#	-	-
	umhos/cm	0584	WL	01/28/2005	N001	18.00 - 18.00	7399		F	#	-	-
	umhos/cm	0585	WL	01/28/2005	N001	18.00 - 18.00	1474		F	#	-	-
	umhos/cm	0586	WL	01/28/2005	N001	18.00 - 18.00	1323		F	#	-	-
	umhos/cm	0587	WL	01/28/2005	N001	18.00 - 18.00	140		F	#	-	-
	umhos/cm	0588	WL	01/28/2005	N001	26.00 - 26.00	1386		F	#	-	-
	umhos/cm	0589	WL	01/28/2005	N001	44.00 - 44.00	55569		F	#	-	-
	umhos/cm	0590	WL, PZ	01/26/2005	N001	1.08 - 1.08	2354		FQ	#	-	-
	umhos/cm	0591	WL, PZ	01/26/2005	N001	4.22 - 4.22	6411		FQ	#	-	-
	umhos/cm	0592	WL, PZ	01/26/2005	N001	2.10 - 2.10	13180		FQ	#	-	-
	umhos/cm	0593	WL, PZ	01/26/2005	N001	4.13 - 4.13	26938		F	#	-	-
Sulfate	mg/L	0236	SL, RIV	01/26/2005	0001	0.30 - 0.30	6400			#	50	-
	mg/L	0408	WL	01/28/2005	0001	26.00 - 26.00	2200		F	#	25	-
	mg/L	0549	IS, IHYD	01/28/2005	0001	0.00 - 0.00	290			#	10	-
	mg/L	0580	WL	01/28/2005	0001	18.00 - 18.00	880		F	#	10	-
	mg/L	0582	WL	01/28/2005	0001	18.00 - 18.00	530		F	#	10	-
	mg/L	0583	WL	01/28/2005	0001	18.00 - 18.00	4100		F	#	50	-
	mg/L	0584	WL	01/28/2005	0001	18.00 - 18.00	3600		F	#	50	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0587	WL	01/28/2005	0001	18.00 - 18.00	1300		F	#	25	-
	mg/L	0589	WL	01/28/2005	0001	44.00 - 44.00	9400		F	#	250	-
	mg/L	0590	WL, PZ	01/27/2005	N001	1.08 - 1.08	850		FQ	#	25	-
	mg/L	0591	WL, PZ	01/26/2005	0001	4.22 - 4.22	1400		FQ	#	25	-
	mg/L	0591	WL, PZ	01/27/2005	N002	4.22 - 4.22	1300		FQ	#	25	-
	mg/L	0592	WL, PZ	01/27/2005	N001	2.10 - 2.10	7700		FQ	#	100	-
	mg/L	0593	WL, PZ	01/26/2005	0001	4.13 - 4.13	12000		F	#	250	-
	mg/L	0593	WL, PZ	01/26/2005	N002	4.13 - 4.13	12000		F	#	250	-
Temperature	C	0236	SL, RIV	01/26/2005	N001	0.30 - 0.30	13.90			#	-	-
	C	0401	WL	01/28/2005	N001	18.00 - 18.00	6.52		F	#	-	-
	C	0402	WL	01/28/2005	N001	17.00 - 17.00	9.41		F	#	-	-
	C	0408	WL	01/28/2005	N001	26.00 - 26.00	9.09		F	#	-	-
	C	0549	IS, IHYD	01/28/2005	N001	0.00 - 0.00	6.32			#	-	-
	C	0580	WL	01/28/2005	N001	18.00 - 18.00	10.14		F	#	-	-
	C	0581	WL	01/28/2005	N001	18.00 - 18.00	13.23			#	-	-
	C	0582	WL	01/28/2005	N001	18.00 - 18.00	11.75		F	#	-	-
	C	0583	WL	01/28/2005	N001	18.00 - 18.00	14.28		F	#	-	-
	C	0584	WL	01/28/2005	N001	18.00 - 18.00	14.04		F	#	-	-
	C	0585	WL	01/28/2005	N001	18.00 - 18.00	7.11		F	#	-	-
	C	0586	WL	01/28/2005	N001	18.00 - 18.00	6.80		F	#	-	-
	C	0587	WL	01/28/2005	N001	18.00 - 18.00	10.39		F	#	-	-
	C	0588	WL	01/28/2005	N001	26.00 - 26.00	9.52		F	#	-	-
	C	0589	WL	01/28/2005	N001	44.00 - 44.00	10.82		F	#	-	-
	C	0590	WL, PZ	01/26/2005	N001	1.08 - 1.08	11.06		FQ	#	-	-
	C	0591	WL, PZ	01/26/2005	N001	4.22 - 4.22	10.64		FQ	#	-	-
	C	0592	WL, PZ	01/26/2005	N001	2.10 - 2.10	6.47		FQ	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0593	WL, PZ	01/26/2005	N001	4.13 - 4.13	6.71		F	#	-	-
Total Dissolved Solids	mg/L	0236	SL, RIV	01/26/2005	0001	0.30 - 0.30	5700			#	200	-
	mg/L	0408	WL	01/28/2005	0001	26.00 - 26.00	2900		F	#	80	-
	mg/L	0549	IS, IHYD	01/28/2005	0001	0.00 - 0.00	780			#	20	-
	mg/L	0580	WL	01/28/2005	0001	18.00 - 18.00	1700		F	#	40	-
	mg/L	0582	WL	01/28/2005	0001	18.00 - 18.00	1000		F	#	40	-
	mg/L	0583	WL	01/28/2005	0001	18.00 - 18.00	5800		F	#	200	-
	mg/L	0584	WL	01/28/2005	0001	18.00 - 18.00	4800		F	#	80	-
	mg/L	0587	WL	01/28/2005	0001	18.00 - 18.00	2300		F	#	40	-
	mg/L	0589	WL	01/28/2005	0001	44.00 - 44.00	42000		F	#	1000	-
	mg/L	0590	WL, PZ	01/27/2005	N001	1.08 - 1.08	1500		FQ	#	80	-
	mg/L	0591	WL, PZ	01/26/2005	0001	4.22 - 4.22	2600		FQ	#	80	-
	mg/L	0591	WL, PZ	01/27/2005	N002	4.22 - 4.22	2200		FQ	#	80	-
	mg/L	0592	WL, PZ	01/27/2005	N001	2.10 - 2.10	13000		FQ	#	400	-
	mg/L	0593	WL, PZ	01/26/2005	0001	4.13 - 4.13	21000		F	#	400	-
	mg/L	0593	WL, PZ	01/26/2005	N002	4.13 - 4.13	21000		F	#	400	-
Turbidity	NTU	0236	SL, RIV	01/26/2005	N001	0.30 - 0.30	31.8			#	-	-
	NTU	0401	WL	01/28/2005	N001	18.00 - 18.00	12.6		F	#	-	-
	NTU	0402	WL	01/28/2005	N001	17.00 - 17.00	4.85		F	#	-	-
	NTU	0408	WL	01/28/2005	N001	26.00 - 26.00	6.16		F	#	-	-
	NTU	0549	IS, IHYD	01/28/2005	N001	0.00 - 0.00	86			#	-	-
	NTU	0580	WL	01/28/2005	N001	18.00 - 18.00	9.01		F	#	-	-
	NTU	0581	WL	01/28/2005	N001	18.00 - 18.00	22.0			#	-	-
	NTU	0582	WL	01/28/2005	N001	18.00 - 18.00	9.02		F	#	-	-
	NTU	0583	WL	01/28/2005	N001	18.00 - 18.00	10.6		F	#	-	-
	NTU	0584	WL	01/28/2005	N001	18.00 - 18.00	29.2		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0585	WL	01/28/2005	N001	18.00 - 18.00	3.23		F	#	-	-
	NTU	0586	WL	01/28/2005	N001	18.00 - 18.00	1.10		F	#	-	-
	NTU	0587	WL	01/28/2005	N001	18.00 - 18.00	2.33		F	#	-	-
	NTU	0588	WL	01/28/2005	N001	26.00 - 26.00	0.64		F	#	-	-
	NTU	0589	WL	01/28/2005	N001	44.00 - 44.00	2.45		F	#	-	-
	NTU	0590	WL, PZ	01/26/2005	N001	1.08 - 1.08	297		FQ	#	-	-
	NTU	0591	WL, PZ	01/26/2005	N001	4.22 - 4.22	225		FQ	#	-	-
	NTU	0592	WL, PZ	01/26/2005	N001	2.10 - 2.10	120		FQ	#	-	-
	NTU	0593	WL, PZ	01/26/2005	N001	4.13 - 4.13	3.94		F	#	-	-
Uranium	mg/L	0236	SL, RIV	01/26/2005	0001	0.30 - 0.30	0.870			#	0.00046	-
	mg/L	0408	WL	01/28/2005	0001	26.00 - 26.00	0.240		F	#	0.00011	-
	mg/L	0549	IS, IHYD	01/28/2005	0001	0.00 - 0.00	0.0073			#	4.6E-06	-
	mg/L	0580	WL	01/28/2005	0001	18.00 - 18.00	0.210		F	#	0.00011	-
	mg/L	0582	WL	01/28/2005	0001	18.00 - 18.00	0.160		F	#	0.00011	-
	mg/L	0583	WL	01/28/2005	0001	18.00 - 18.00	0.900		F	#	0.00046	-
	mg/L	0584	WL	01/28/2005	0001	18.00 - 18.00	0.750		F	#	0.00011	-
	mg/L	0587	WL	01/28/2005	0001	18.00 - 18.00	0.290		F	#	0.00046	-
	mg/L	0589	WL	01/28/2005	0001	44.00 - 44.00	1.500		F	#	0.00046	-
	mg/L	0591	WL, PZ	01/26/2005	0001	4.22 - 4.22	0.130		FQ	#	0.00011	-
	mg/L	0591	WL, PZ	01/27/2005	N002	4.22 - 4.22	0.045		FQ	#	0.00011	-
	mg/L	0592	WL, PZ	01/27/2005	N001	2.10 - 2.10	0.420		FQ	#	0.00011	-
	mg/L	0593	WL, PZ	01/26/2005	0001	4.13 - 4.13	3.300		F	#	0.00046	-
	mg/L	0593	WL, PZ	01/26/2005	N002	4.13 - 4.13	2.800		F	#	0.00046	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Site
REPORT DATE: 4/26/2005 9:17 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='MOA01' AND location_code in('0590','0591','0592','0593','0236','0408','0401','0549','0586','0585','0584','0583','0587','0588','0589','0402','0582','0581','0580') AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #1/26/2005# and #1/28/2005#

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LOCATION TYPES: IS INJECTION SYSTEM SL SURFACE LOCATION WL WELL

LOCATION SUBTYPES: IHYD Injection System Hydrant PZ Piezometer RIV River

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- G Possible grout contamination, pH > 9.
- J Estimated value.
- L Less than 3 bore volumes purged prior to sampling.
- Q Qualitative result due to sampling technique
- R Unusable result.
- U Parameter analyzed for but was not detected.
- X Location is undefined.

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

BLANKS REPORT
LAB CODE: PAR, PARAGON (Fort Collins, CO)
LAB REQUISITION(S): 05010160
REPORT DATE: 04/25/05 03:38:49: PM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	SAMPLE ID	UNITS	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE
Ammonia Total as N	MOA01	0999	01/28/2005	0001	mg/L	0.1	U		0.1		E
Chloride	MOA01	0999	01/28/2005	0001	mg/L	0.2	U		0.2		E
Sulfate	MOA01	0999	01/28/2005	0001	mg/L	0.5	U		0.5		E
Total Dissolved Solids	MOA01	0999	01/28/2005	0001	mg/L	20	U		20		E
Uranium	MOA01	0999	01/28/2005	0001	mg/L	0.000036	B	U	0.0000046		E

BLANKS REPORT
LAB CODE: PAR, PARAGON (Fort Collins, CO)
LAB REQUISITION(S): 05010160
REPORT DATE: 04/25/05 03:38:49: PM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	ID	UNITS	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
C	Pesticide result confirmed by GC-MS.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
D	Analyte determined in diluted sample.
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
>	Result above upper detection limit.
J	Estimated

DATA QUALIFIERS:

J	Estimated value.	F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.
L	Less than 3 bore volumes purged prior to sampling.	R	Unusable result.	X	Location is undefined.
U	Parameter analyzed for but was not detected.	Q	Qualitative result due to sampling technique		

SAMPLE TYPES:

E	EQUIPMENT BLANK

Attachment 2

Trip Report

Stoller

established 1959

DATE: February 8, 2005

TO: Ken Karp

FROM: K. G. Pill

SUBJECT: Trip Report

Site: Moab – I.A. Configuration II Injection Test Sampling – January 2005

Date of Sampling Event: January 26 - 28, 2005.

Team Members: Ken Pill and Steve Hall.

Number of Locations Sampled: 7 observation wells (0408, 0580, 0582, 0583, 0584, 0587 and 0589), 4 piezometers (0590 through 0593), 1 surface water location (0236), and 1 injection water sample (0549). Including two duplicates and one equipment blank, a total of **16** samples were collected.

Locations in Which Field Parameters Were Measured Only: Field parameters were measured from 6 observation wells (0401, 0402, 0581, 0585, 0586, and 0588). Samples were not submitted to Paragon for laboratory analysis from these locations.

Locations Not Sampled/Reason: The surface water body in the vicinity of 0240 was not connected in the upstream or downstream direction, and there was insufficient depth (less than 1 inch) to collect a sample. As a result, a sample was not collected.

Field Variance: Only a 125 ml sample was collected for uranium analysis as opposed to the standard 500 ml sample volume. Limited sample volumes were collected from piezometers 0590, 0591, and 0592, and locations 2759 and 2760. Samples collected from 0590, 0592, 2759, and 2760 were not filtered in the field, and not preserved beyond 4 ^{o}C. This variance was discussed with Steve Donivan prior to submitting the samples.

Quality Control Sample Cross Reference: Following are the false identifications assigned to the quality control samples:

FALSE ID	TRUE ID	SAMPLE TYPE	ASSOCIATED MATRIX	TICKET NUMBER
2759	0593	Duplicate	Ground water	NDY-663
2760	0591	Duplicate	Ground Water	NDY-962
2761	NA	Equipment Blank	Water	NDY-965

RIN Number Assigned: All samples were assigned to RIN **05010160**.

Sample Shipment: All samples were shipped (in one cooler) overnight FEDEX to Paragon Analytics, Inc. from Moab, Utah, on January 28, 2005 (Airbill No. 8473 2967 6259).

Location Specific Information – Observation Wells: All Observation wells were sampled using micro-purge techniques with a peristaltic pump and downhole tubing. Sample depths and water levels for each observation well are listed below. **Note the sample depths are below ground surface.**

Well No.	Date	Time	Depth to Water (ft btoc)	Sample Depth (ft bgs)
0408	1/28/05	08:45	14.79	28
0580	1/28/05	12:26	16.15	18
0582	1/28/05	11:52	16.05	18
0583	1/28/05	10:20	15.80	18
0584	1/28/05	10:02	15.15	18
0587	1/28/05	10:40	15.08	18
0589	1/28/05	11:12	14.84	44

Field parameters (only) were measured from locations 0401, 0402, 0585, 0586, 0587, and 0588. These data are presented below with the sample depths (provided in feet below ground surface). These samples were not submitted for laboratory analysis.

Well No.	Date	Time	Sample Depth (ft bgs)	Depth To Water (ft btoc)	Field Parameters				
					Temp (^oC)	Spec Cond (µS/cm)	pH	ORP	Turbidity (NTUs)
0401	1/28/05	09:12	18	15.19	6.52	1326	7.71	54	12.6
0402	1/28/05	11:41	17	14.97	9.41	2196	7.69	65	4.85
0581	1/28/05	12:11	18	15.42	13.23	3521	7.64	79	22.0
0585	1/28/05	09:48	18	15.28	7.11	1474	7.77	58	3.23
0586	1/28/05	09:33	18	14.56	6.80	1323	7.73	53	1.10
0588	1/28/05	10:57	26	14.85	9.52	1386	7.80	66	0.64

Location Specific Information – Piezometers: Water levels were measured in piezometers 0590, 0591, 0592, and 0593. The data are provided below. A photograph is attached to this report showing these four piezometers at the time of the sampling.

PZ No.	Date	Time	Depth to Water (ft btoc)
0590	1/26/05	15:26	3.46
0591	1/26/05	15:34	0.84
0592	1/26/05	15:54	3.34
0593	1/26/05	15:59	1.53

Limited sample volumes were collected from piezometers 0590, 0591 and 0592 (approximately 130, 175, and 150 mls, respectively). In order to maximize the volume of water available for analysis, the samples collected from 0590 and 0592 were not filtered in the field and were not acid preserved.

Location Specific Information – Surface Water Sampling: A photograph of location 0236 is attached to this report. The depth at which the sample was collected was 0.3 ft below the water surface.

Well Inspection Summary: A well inspection was not conducted.

Equipment: All equipment functioned properly.

Site Issues: The injection test had been running approximately 16 weeks (since October 6, 2004) prior to this sampling effort.

According to the USGS Cisco Gaging Station (Station No. 09180500), the mean daily Colorado River Flow on January 26, 2005, was 3,000 cfs. The flow increased to 3,290 cfs on January 28, 2005.

Corrective Action Required/Taken: None.

(KGP/lcg)

cc: J. D. Berwick, DOE-EM (e)
D. R. Metzler, DOE-EM
C. I. Bahrke, Stoller (e)
L. E. Cummins, Stoller (e)
S. E. Donivan, Stoller (e)
L. M. Edwards, Stoller (e)
S. D. Lyon, Stoller (e)
K. E. Miller, Stoller
K. G. Pill, Stoller (e)
J. E. Price, Stoller (e)
L. M. Wright, Stoller (e)
Working File, MOA

Piezometers 0590, 0591, 0592, and 0593

Surface Water Location 0236